

PHYSICAL DEVELOPMENT, THE LEVEL OF PHYSICAL AND TECHNICAL PREPAREDNESS OF 14 - 15 YEAR OLD YOUNG WEIGHTLIFTERS OF DIFFERENT WEIGHT CATEGORIES GROUPS

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Annotation. *Purpose:* explore physical development, the level of physical and technical preparedness of young weightlifters of different weight categories groups. *Material:* the study involved 36 athletes. Athletes age 14-15 years. *Results:* present physical development, the level of physical and technical preparedness of athletes who are preparing for the championship of Ukraine. Found that indicators body length athletes tend to increase with increasing weight category groups - by 15,0% ($p < 0,05$). It is estimated that the active body mass index increases with sportsmen groups weight categories - by 20,0% ($p < 0,05$). It is proved that the difference between the strength of the left and right brushes all weight categories of groups - 2.4%. The analysis of the indicators in the control of technical readiness exercises in the snatch. *Conclusions:* to determine the trends of physical development, the level of physical and technical preparedness of athletes of different groups of weight categories. Indicator is dynamometry athletes increased with increasing weight category groups - by 47,7% ($p < 0,05$).

Keywords: young, weightlifter, physical, development, level, preparedness.

Introduction

Intensive trainings with weight bar facilitate manifestation of maximal strength of junior weight lifters owing to strengthening of health and development of active muscular mass.

Желание победить в соревнованиях высшего уровня и улучшить результаты, устанавливают высокие требования к физическому развитию, уровню физической и технической подготовленности в тренировочном процессе юных тяжелоатлетов [1-4].

Analysis of recent researches and publications witnesses that most of authors in weight lifting wanted [1-4] to generalize results of study of physical condition indicators, levels of physical and technical fitness of the strongest junior weightlifters. With it in the course of study of physical condition and physical and technical fitness of junior weightlifters of different weight categories we have not found reasons of selection for competitions neither in theory and practice of weight lifting nor in domestic and foreign literature. That is why, on the base of analysis of coaches' and sportsmen's questioning we think that this problem shall be studied.

The work has been fulfilled in compliance with "Combined plan of SRW in field of physical culture and sports for 2011-2015" of Ministry of youth and sports of Ukraine by topic 2.8. "Improvement of sportsmen's training in separate kinds of sports" (state registration number 0107U001647).

Purpose, tasks of the work, material and methods

The purpose of the work is analysis of indicators of physical condition, level of physical and technical fitness.

The methods of the research:

1. Analysis of scientific-research literature. 2. Questioning of coaches and sportsmen. 3. Anthropometry. Caliperometry. 4. Determination of technical fitness with the help of video computer analysis of space characteristics of jerk weight lifting in control exercises. 5. Pedagogic observation over training process. 6. Methods of mathematical statistics.

We analyzed physical condition's indicators, levels of physical and technical fitness of 36 junior weight lifters of 1st sport degree. All junior weightlifters were divided into weight categories: I - < 45 kkg, II - 45 - 55, III - 56 - 70 kg.

Results of the research

We studied physical condition's indicators, levels of physical and technical fitness of junior weight lifters. Indicators of mass body content of junior weight lifters are informative indicator of their functional potentials and level of fitness [1,3,4]. Thickness of junior weightlifters' fat layer depends on hereditary factors, which can not be changed, but quantity of fat can be changed by regulating of physical loads volume and mode of eating. Index of active body mass (IABM) permits not only to compare fitness of different sportsmen but also permits to control of body mass increasing. Trainings of junior weightlifters and their eating permit increasing of muscular tissue [1-4].

We presented indicators of body mass content of 15-15 years old junior weight lifters of different weight categories (see table 1).

Table 1

Indicators of body mass content of 14-15 years old weight lifters of different weight categories, $\bar{x} \pm m$ (n=36)

Groups of weight categories and confidentiality of differences (p<0,05)	Indicator				
	Body mass, kg	Length of body, cm	Mass of fat tissue, % from body mass	IABM, conv.un.	
First	38.5±1.5	147.0±1.2	4.6±0.1	1,2±0,05	
second	50.0±1.3	161.0±1.7	4.85±0.1	1,22±0,07	
(p<0,05)	p<0.05	p<0.05	p>0.05	p>0,05	
Third	65.0±2.4	169.0±2.2	5.4±0.2	1.44±0.07	
(p<0,05)	p<0.05	p<0.05	p<0.05	p<0.05	
Groups of weight categories and confidentiality of differences (p<0,05)	Body segments				
	Chest	Back	Superior limb (biceps and triceps)	Abdomen (Oblique muscle and rectus)	Lower limb (thigh and shin)
First	2.0±0.1	1.9±0.1	2.2±0.5	4.6±0.3	3.0±0.1
Second	2.2±0.1	2.0±0.1	2.5±0.1	5.1±0.5	3.8±0.2
(p<0,05)	p>0.05	p>0.05	p>0.05	p>0.05	p<0.05
Third	2.5±0.1	2.4±0.1	2.9±0.5	5.6±0.8	5.0±0.2
(p<0,05)	p<0.05	p<0.05	p>0.05	p>0.05	p<0.05

Analysis shows that mass of fat tissue of junior weight lifters increases with increasing of weight category – by 4.3 and 12.5 %, but only difference between first and second and between second and third are confident (p < 0.05); index of active body mass – by 1.6 % (p > 0.05) and 18.0 % (p < 0.05). This analysis witnesses that the greatest fat layer of junior sportsmen is on abdomen, which increases with increasing of weight categories accordingly - by 10.8 %, (p > 0,05) и 9,8 %, (p > 0,05); нижних конечностях - на 26,6 % (p < 0,05) и 31,5 % (p < 0,05); грудной клетки - на 10.0 % (p > 0.05) and 13.6 % (p < 0.05); on back - by 5.2 % (p > 0.05) and 20.0 % (p < 0.05); on superior limbs – by 13.6 % (p > 0.05) and 16.0 % (p < 0.05).

In our opinion distribution of fat layer on body segments of junior weight lifters depend on body mass and qualification of sportsmen and is individual by character [1,3,4].

In table below we give indicators of physical condition and level of physical fitness of 14-15 year old junior weightlifters of different weight categories (see table 2).

Table 2

Indicators of physical condition and level of physical fitness of 14-15 years old weight lifters of different weight categories $\bar{x} \pm m$ (n=36)

Groups of weight categories and confidentiality of differences (p<0,05)	Indicator					
	Length of body(sitting), cm	Chest circumference, cm	VCL, cm ³	Dynamometry		
				Left hand, kg	Right hand, kg	Backbone, kg
First	76.5±0.6	76.4±1.2	3000.0±22.5	33.2±1.1	34.7±1.1	88.0±2.2
Second	83.7±0.8	83.9±1.3	3400.0±53.0	42.1±1.2	45.7±1.2	120.0±1.2
(p<0,05)	p<0.05	p<0.05	p<0.05	p<0.05	p<0.05	p<0.05
Third	89.9±1.0	91.1±1.7	4200.0±26.0	47.7±1.3	48.6±1.3	130.0±3.5
(p<0,05)	p<0.05	p<0.05	p<0.05	p<0.05	p<0.05	p<0.05

Analysis shows that indicators of body length (cm) have trend to increasing with increasing of weight categories – by 9.5 % ($p < 0.05$) and 4,9 % ($p < 0.05$); indicators of body length (sitting) (cm) – by 9.4 % ($p < 0.05$) and 7.4 % ($p < 0.05$); chest circumference – by 9.8 % ($p < 0.05$) and 8.5 % ($p < 0.05$); VCL cm^3 –by 13.3 % ($p < 0.05$) and 23.5 % ($p < 0.05$); dynamometry of left hand –26.8 % ($p < 0.05$) and 13.3 % ($p < 0.05$); right hand – by 31.7 % ($p < 0.05$) and 6.3 % ($p < 0.05$); backbone – by 36.3 % ($p < 0.05$) and 8.3 % ($p < 0.05$).

Analysis shows that difference between strength of left and right hands of all weight categories is 2.4 %, that is proved by researches of advanced specialists [1,3,4].

In comparison with indicators of physical condition of junior weightlifters of second weight category they are higher among those, whose correlation of general physical fitness and special physical fitness is 75 and 25 %, 50 and 50 %: length of body (cm) – by 1.5 % ($p > 0.05$), body mass (kg) – by 3.0 % ($p > 0.05$), chest circumference (cm) – by 2.3 % ($p > 0.05$), VCL (cm^3) – by 10.9 % ($p < 0.05$).

We gave indicators of technical fitness of 14-15 years old weight lifters in jerk in table 3.

Table 3

Indicators of technical fitness of 14-15 years old weight lifters of different categories in jerk $\bar{x} \pm m$

Weight category	Indicator			
	Length of body, cm	Time of fulfillment of pulling, sec	Height of rising, depending on body length, %	Height of fixing in phase of final acceleration, depending on length of body, %
First	147.0± 1.2	1.39±0.02	76.5±0.2	66.5±0.2
Second	161.0± 1.7	1.40±0.03	77.4±0.1	67.4±0.2
p<0.05	p<0.05	p<0.05	p<0.05	p<0.05
Third	169.0± 2.2	1.47±0.03	77.5±0.1	67.5±0.2
p<0.05	p<0.05	p<0.05	p>0.05	p>0.05

Analysis shows that time of fulfillment of pulling increases with increasing of weight category – by 0.7 % ($p < 0.05$) and 5.0 % ($p < 0.05$); height of rising, depending on body length – by 1.1 % ($p < 0.05$) and 0.1 % ($p > 0.05$); height of fixing in phase of final acceleration, depending on length of body – by 1.3 % ($p < 0.05$) and 0.1 % ($p > 0.05$), that is proved by researches of advanced specialists [1,3,4].

Conclusions

1. We have fulfilled analysis of indicators of physical condition, physical and technical fitness of junior weightlifters of different weight categories, who train for Ukraine junior championship.
2. We determined that indicators of body length have trend to increasing with increasing of weight category – by 9.5 % ($p < 0.05$) and 4.9 % ($p < 0.05$). We proved that index of active body mass increases with increasing of weight category – by 1.6 % ($p > 0.05$), and 18.0 % ($p < 0.05$); difference between strength of left and right hands of all weight categories was – 2.4 %; indicators of backbone dynamometry increase with increasing of weight category – by 36.3 % ($p < 0.05$) and 8.3 % ($p < 0.05$).
3. We have determined dependence of technical fitness in jerk indicators of junior weightlifters for different weight categories.

Further researches imply to fulfill in direction of studying of other training problems of different age and weight groups of weightlifters.

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